

*Working Together for Clean Air*

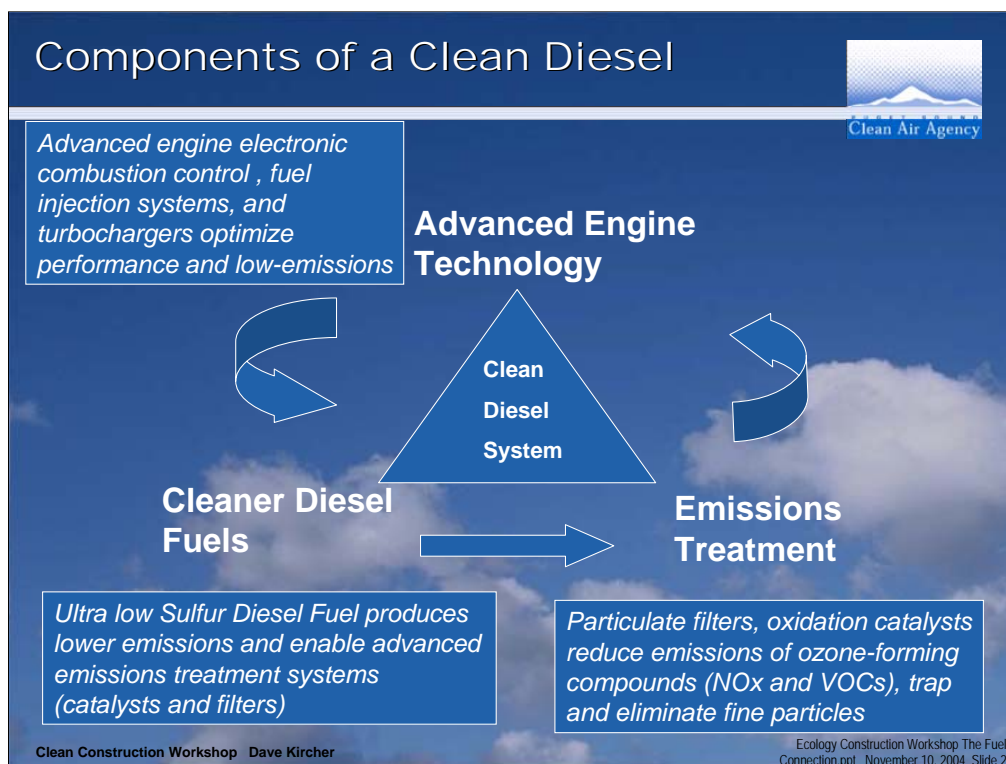
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# Cleaner Diesel Fuels



**Dave Kircher**  
**Tomorrow's Diesel for Today's  
Construction Workshop**  
**November 10, 2004**



Emphasize Fuels

## Key elements of the EPA's non-road Fuels Program



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- EPA's rule will reduce current sulfur levels from about 3,000 parts per million (ppm) to 15 ppm when fully implemented (a reduction of greater than 99 percent).

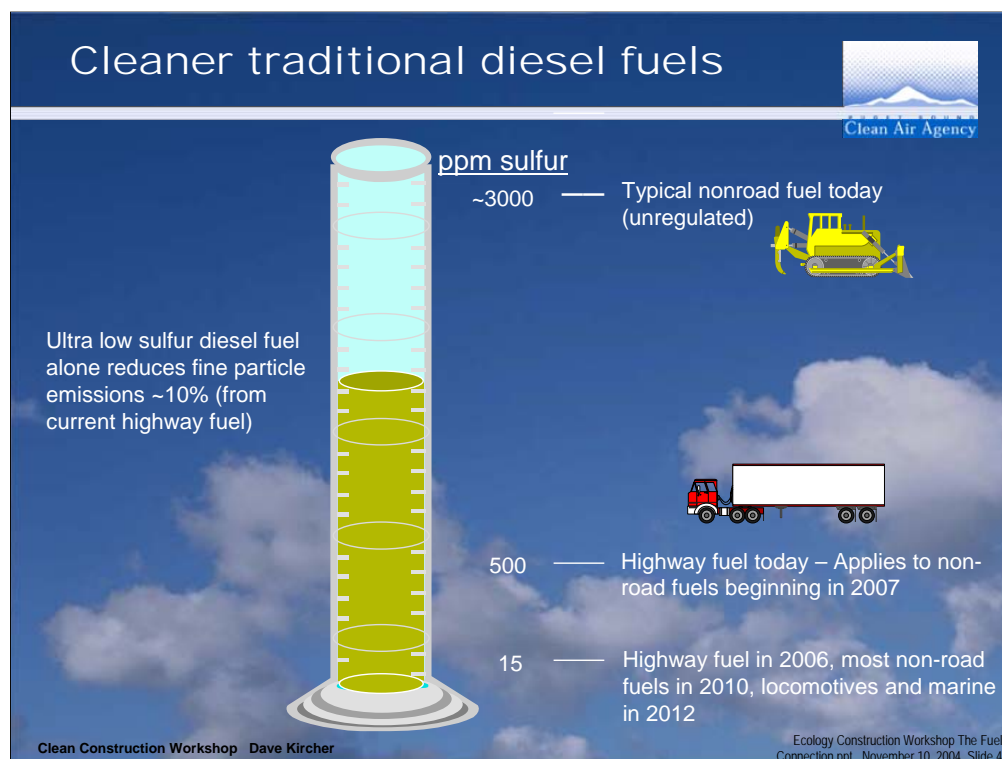
- Sulfur levels reduced in two steps:

- In 2007 to 500 ppm, the same as for current highway diesel fuel.

- In 2010 to 15 ppm, the same as required for highway fuel in 2006

- In the case of locomotive and marine diesel fuel, this second step will occur in 2012.

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## Why reduce sulfur in diesel fuels?



- **Decreasing sulfur levels in non-road diesel fuel will prevent damage to the emission-control systems.**
- **Reducing sulfur levels will provide immediate public health benefits by reducing particulate matter from engines in the existing fleet of non-road equipment, while reducing engine maintenance cost.**
- **Lower sulfur fuels are available for construction equipment now: both highway and ultra low sulfur diesel (ULSD)**

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## What is ultra low sulfur diesel?



- Specially refined diesel fuel
- Can be used in any diesel engine
- Current on road diesel has a maximum of 500 ppm sulfur
- ULSD available now ranges from 15 to 30 ppm sulfur
- Beginning in 2006, on highway ULSD, at the less than 15 ppm sulfur level, will be mandated by EPA
- Enables use of high efficiency emission reduction equipment, produces reductions by itself
- Current cost in Tacoma or Ferndale is about 5 cents more per gallon

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## Biodiesel: clean alternative fuel

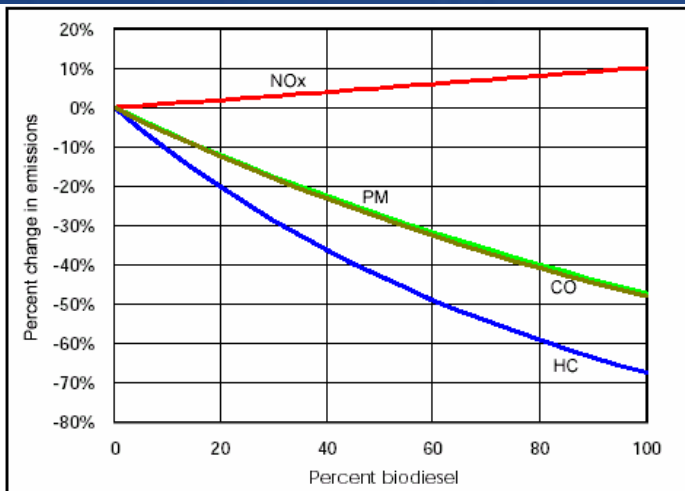


- Manufactured by chemically reacting vegetable oils, recycled cooking grease or animal fats with alcohol
- Most current biodiesel is made from domestic soybean oil
- Very low sulfur content
- Typically blended with petroleum diesel at 2%, 5%, 20% or more
- Advantages: displaces imported oil, reduces air pollution including GHG and supports our farmers
- Disadvantages: costs more than petroleum diesel (B20 is 20-30 cents per gallon more), solvent properties can cause fuel filter clogging, can soften or degrade seals and cold weather performance
- New Federal excise tax credit (effective 1/1/05) could reduce price up to penny per percentage of blending

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## Average emission impacts of biodiesel for heavy-duty highway engines



*A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions,*  
Draft Technical Report, EPA, October 2002

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## Current Users of Clean Fuels



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